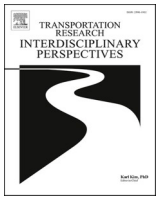
Transportation Research Interdisciplinary Perspectives 37 (2026) 101928

Contents lists available at ScienceDirect

Transportation Research Interdisciplinary Perspectives

journal homepage: www.sciencedirect.com/journal/transportation-research-interdisciplinary-perspectives



Sharing neighbourhood charging points: Surveying communication and agreements between electric vehicle drivers in the Netherlands

Milan Tamis [a,b,*], Gerdien de Vries [c], Reint Jan Renes [a]

[a] Faculty of Applied Social Sciences and Law, Amsterdam University of Applied Sciences, 1000 CD Amsterdam, the Netherlands
[b] Department of Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, 5600 MB Eindhoven, the Netherlands
[c] Faculty of Technology, Policy and Management, Delft University of Technology, 2600 GA Delft, the Netherlands

ARTICLE INFO

Keywords:
Agreements
Communication
Cooperation
Electric vehicles
Neighbourhood
Public charging points

ABSTRACT

Public charging points in neighbourhoods are essential for charging electric vehicles (EVs). Efficient use of these shared charging points requires cooperation from neighbours. Communication and agreements between neighbours regarding the use of charging points are important for cooperation, yet have received little attention in research. Therefore, we aimed to explore the extent to which residents communicate with their neighbours about the use of public residential charging points, whether they (want to) make agreements about their use, the types of agreements that they (want to) make, and the social-psychological factors that determine whether they (want to) make agreements. We analysed responses from an online survey of EV drivers in the Netherlands who charge at public residential charging points in their neighbourhood (N = 314). We found that few residents communicate with their neighbours regarding the use of the charging points, such as sending messages via their mobile phone. We identified an intention–behaviour gap for making agreements: although very few residents had made agreements, many more want to do so. Most want to make agreements about communication with their neighbours or about moving a vehicle from the charging point after it has been charged. Residents who made agreements with neighbours perceived greater social interdependence with their neighbours than residents who did not, and interpersonal trust and perceived social interdependence explained wanting to make agreements. We recommend that municipalities and charging point operators inform, encourage, and facilitate EV drivers in making agreements about sharing public residential charging points with their neighbours.

1. Introduction

In the transition to electric vehicles (EVs), facilitating public charging infrastructure is essential (International Energy Agency, 2025). Public charging infrastructure can support EV adoption (Globisch et al., 2019; Ledna et al., 2022) and continues to expand in many countries worldwide (International Energy Agency, 2025). Over 70% of residents of the European Union live within one kilometre of a public charging point (International Energy Agency, 2025), making this infrastructure accessible for many current and potential EV drivers. Public charging points can be found at workplaces, at public venues, and in residential areas. Charging points in residential areas are shared between residents and provide an important alternative to private charging points for EV drivers who cannot install them.

The use of a public residential charging point reflects a social dilemma. In social dilemmas, an individual's choice that might yield them the most benefit produces suboptimal results for the entire group if every individual acts in this way (Dawes and Messick, 2000; Kollock, 1998). For example, egoistic behaviour, such as leaving a vehicle parked at the charging point after charging, might be convenient for the individual but makes charging points unavailable for others – i.e. neighbours. Behaviour that concerns the use of public residential charging points is social and can have both positive and negative effects on the opportunity for other residents to charge their vehicles (Tamis et al., 2024). Therefore, the use of these charging points entails a form of social interdependence (Deutsch, 1949), meaning that the behaviour of one individual affects both their own outcomes and the outcomes of others (Gerpott et al., 2018).

To date, research on public charging point use has focused mainly on human–technology interactions, meaning that it revolves around the interaction between the EV driver, their vehicle, and the charging point (Tamis et al., 2024). Particularly, the behaviour of moving a vehicle

* Corresponding author at: Wibautstraat 3b, 1091 GH Amsterdam, Mailbox 2171, 1000 CD Amsterdam, the Netherlands.
E-mail address: m.r.tamis@hva.nl (M. Tamis).

https://doi.org/10.1016/j.trip.2026.101928
Received 31 July 2025; Received in revised form 2 March 2026; Accepted 11 March 2026

away from the charging point after charging, and how to influence this behaviour, has received much attention (Asensio et al., 2022; Bornioli et al., 2024; Wolbertus and Van Den Hoed, 2017). Moving a vehicle away from the charging point after charging is essential for charging point availability, and EV drivers consider this important (Tamis et al., 2025). However, focusing only on this action, or on an external measure to motivate people to do so, neglects influences from the social context and other social behaviours that might precede this behaviour. For instance, charging data can identify EVs overstaying at the charging point after charging (van der Kam et al., 2020; Wolbertus et al., 2018) but cannot identify the intentionality of the behaviour (Tamis et al., 2024). Perhaps the person intended to move the vehicle from the charging point, but forgot to do so.

Communication is important for successful cooperation in social dilemmas (Balliet, 2010; Jin et al., 2024; Kollock, 1998) and allows people to explain behaviour that was less cooperative than intended (Tazelaar et al., 2004), such as forgetting to move a vehicle from a charging point. Public charging is not just about people interacting with technology; it is also about people interacting with one another – especially neighbours who need to coordinate their use of shared charging points. This is called interpersonal interaction, consisting of communication between neighbours using the same public charging points (Tamis et al., 2024). However, very few studies have analysed how, and how often, residents with EVs communicate with one another regarding the use of public residential charging points. A recent study explored whether EV drivers (are willing to) move their vehicle from a public charging point when requested by another EV driver who wants to charge (Helmus and Wolbertus, 2023). An even more recent study (under review), based on survey data, reveals four additional forms of communication some EV drivers engage in: leaving a note with contact details, leaving a note or parking disc indicating the time at which the vehicle will be charged, leaving a note or parking disc indicating the time at which the vehicle will be moved, and contacting neighbours via mobile phone (Tamis et al., 2025). Insights into how and how often residents communicate with one another could be used to assess whether this type of cooperation is common practice and to understand how it might affect charging point use. Therefore, gathering insight into how often residents with EVs engage in different types of communication with their neighbours about the use of charging points helps us to understand how we can optimise charging point usage.

Residents might also engage in more structured forms of cooperation by making agreements about the shared use of these public charging points. Making agreements allows for the exchange of information, such as information about who wants to charge when or how neighbours prefer to communicate with one another. Having information about how dependent people are on one another's actions for obtaining beneficial outcomes for themselves and others can increase cooperative behaviour (Martin et al., 2014). This information can be used to anticipate the behaviour of another person, which is essential for coordination (Balliet et al., 2017). Individual preferences for using a shared technology might be adjusted based on (hearing about) others' choices (Yang et al., 2022), further improving coordination. Some users might even expect a discussion about using a shared technology (D'Oca et al., 2018).

A study focusing on workplace charging showed that a lack of communication among users can hinder the efficient sharing of these charging points (ElBanhawy and Price, 2015). Research has shown that EV drivers make agreements about sharing workplace charging points (TyreeHageman et al., 2014), including requesting the use of a charging point (Budnitz, 2024) or plugging in another vehicle when the owner of the current charging vehicle leaves (Caperello et al., 2013). However, this research is primarily based on qualitative research methods, and focuses on workplace charging infrastructure, rather than public residential. Furthermore, public charging infrastructure experts have suggested that mutual agreements made among EV drivers could influence their behaviour at public residential charging points (Tamis et al., 2024), yet no research involving EV drivers has been undertaken on this topic.

Research into whether residents with EVs make agreements with one another, and the types of agreements that they make, provides insight into how the social context influences charging point usage and how residents might cooperatively optimise charging point usage. Knowing what agreements residents have made, or want to make, provides input for policy measures to facilitate such agreements. For instance, if residents make agreements about notifying one another when they want to charge, this behaviour could be facilitated by charge point operators (CPOs).

1.1. The current study

Communication is crucial for cooperation, and agreements among residents using public residential charging points could improve the efficient use of these charging points. Therefore, we aim to assess the extent to which residents with EVs communicate with one another about the use of the neighbourhood's public charging points, whether they (want to) make agreements with their neighbours about these charging points, the type of agreements that they (want to) make, and the social-psychological factors that determine whether they (want to) make agreements. These aims led us to formulate the following research questions about residents with EVs regarding communication and making agreements:

RQ1: To what extent do residents with EVs communicate with their neighbours about the use of public residential charging points?

RQ2: How many residents with EVs have made, or want to make, agreements with their neighbours about the use of public residential charging points?

RQ3: What type of agreements have residents with EVs made, or do they want to make, with their neighbours about the use of public residential charging points?

RQ4: What social-psychological factors determine whether residents with EVs make, or want to make, agreements with their neighbours about the use of public residential charging points?

For our study, we focus on EV drivers in the Netherlands, because the Netherlands hosts an extensive charging infrastructure (European Automobile Manufacturers' Association, 2024), with an average of 1900 new public charging points installed per month in 2023 (Nationale Agenda Laadinfrastructuur, 2024). Yet, calls for an even more rapid expansion of public charging points indicate a growing need for more of them (RAI Vereniging, 2023). However, continuously installing new public charging points is costly and does not incentivise social and efficient use of this infrastructure. This study helps to understand how the existing public charging infrastructure in residential areas can be more effectively shared.

A recent study showed that new EV drivers in the Netherlands charge increasingly more often at public charging points because they lack options to charge privately (Wolterman et al., 2025, 2024). These EV drivers charge 54% of the kilometres driven at public residential charging points, and use these charging points on average 6.7 times per month (Wolterman et al., 2025). The same study showed that 35% of EV drivers using workplace charging points reported agreements were made about moving a fully charged vehicle from the charging point (Wolterman et al., 2025). However, information about agreements for sharing public residential charging points is lacking.

1.2. Framework

Perceptions of how neighbours use charging points and how each resident relates to their neighbours could be important factors in determining whether residents with EVs (want to) make agreements with their neighbours. Identifying the factors that influence the making of agreements allows us to understand the social context in which agreements between neighbours appear feasible or desirable. Therefore, we are interested in the factors that determine whether residents with

EVs (want to) make agreements with their neighbours. As making agreements with others is a social behaviour, we focus on social-psychological factors. These social-psychological factors reflect residents' perceptions of their neighbours' usage of these charging points and perceptions of how they relate to their neighbours.[1] We distinguish five social-psychological factors that could influence whether residents with EVs (want to) make agreements. These factors were selected for this research based on an exploration of the literature on social influence and factors that influence cooperative behaviour.

The first factor is social norms: the informal rules and the perceptions of appropriate behaviour shared by group members (Cialdini and Trost, 1998) that guide individual behaviour. These include injunctive norms, which prescribe valued behaviour (Cialdini and Trost, 1998), and descriptive norms, which inform "how others act in similar situations" (Cialdini and Trost, 1998, p. 152). People are likely to follow the behavioural norms of others who share the same environment in which the behaviour takes place (Cialdini, 2012), such as EV-driving neighbours, and tend to cooperate when others do too (Fehr and Fischbacher, 2004). Consequently, we are interested in whether residents' perception of a social norm of neighbours taking other neighbours into account when using the charging point determines whether they (want to) make agreements.

The second factor is interpersonal trust: a positive belief in, and expectation of, the cooperative intentions of others (Bogaert et al., 2008; Pletzer et al., 2018; van Lange and de Dreu, 2003). Trust is particularly relevant in situations where individuals' preferences or interests tend to conflict (Balliet and Van Lange, 2013), such as multiple neighbours wanting to charge at the same charging point simultaneously. Therefore, we want to know whether residents' trust in their neighbours using the charging points in a way that is beneficial for others determines whether they (want to) make agreements with these neighbours.

The third factor is perceived social interdependence, and particularly the aspect of mutual dependence: the extent to which people "mutually control each other's outcomes" (Columbus and Molho, 2022, p. 228). How people view their mutual dependence might influence their behaviour (Gerpott et al., 2018) and can result in, for instance, cooperative behaviour when they are sharing charging points with many neighbours with whom they consider themselves interdependent. Thus, we want to understand whether residents' perception of their mutual dependence determines whether they (want to) make agreements.

The fourth factor is reputational concern: an individual's concern about their position within the relevant group and how they might be perceived by members of that group (de Cremer and Tyler, 2005), based, for instance, on the evaluation of their behaviour (Számadó et al., 2021). Concern for one's own reputation can spark motivation to act cooperatively (Romano et al., 2017), and maintaining a good reputation is beneficial for further interactions with in-group members (Grimalda et al., 2016), such as neighbours, who might reciprocate cooperative behaviour. Therefore, we are interested in whether residents' concern for their reputation with their neighbours determines whether they (want to) make agreements with their neighbours.

The fifth factor is perceived cohesion: the sense of belonging and feelings of morale that an individual might have towards their neighbourhood and neighbours (Bollen and Hoyle, 1990). In a neighbourhood with a high level of cohesion, residents interact with one another (Buckner, 1988), potentially making it easier to communicate about agreements. Hence, we would like to know whether residents' perception of cohesion determines whether they (want to) make agreements with their neighbours.

[1] We do not focus on individual psychological factors, such as values. We reflect on this decision in section 4.5.

2. Methods

We conducted a survey and collected both quantitative and qualitative data. Fig. 1 presents the various steps of the research process, including the analyses and the corresponding research question(s). In the following sections, we address each step in detail.

2.1. Survey design

We designed the survey within the online platform *Qualtrics*. Because we targeted EV drivers in the Netherlands, the survey was in Dutch. To answer our research questions, we formulated questions and items about communication and agreements between residents with EVs, and social-psychological factors that might determine whether agreements were made.[2] We also included questions to collect demographic information. Almost all items were rated on a 7-point scale (see (Preston and Colman, 2000; Simms et al., 2019) for a discussion on 7-point scales). The study, including the informed consent form and survey design, was approved by the Ethical Review Board of the Eindhoven University of Technology (ERB2024IEIS88).

2.1.1. Communication and agreements between residents with EVs

We asked respondents about five ways to communicate with their EV-driving neighbours (RQ1), in addition to making agreements. These behaviours were based on the few communication behaviours reported in the literature: (1) leaving a note with contact details, (2) leaving a note or parking disc indicating the time at which the vehicle will be charged, (3) leaving a note or parking disc indicating the time at which the vehicle will be moved, (4) contacting neighbours via mobile phone (Tamis et al., 2025), and (5) moving a vehicle upon request from a neighbour (Helmus et al., 2020; Helmus and Wolbertus, 2023). Respondents were asked to reflect on these behaviours in the past three months. Four behaviours were measured on a 7-point frequency scale (1 = never … 7 = always); contacting neighbours via mobile phone was a multiple-choice question with four answer options: (1) Yes, via a messaging service (such as WhatsApp or Signal), (2) Yes, via apps specifically designed for this (such as SocialCharging or NeedToCharge), (3) Yes, in another way (optional text entry), and (4) No.

After the questions on communication, respondents were asked whether they made agreements with neighbours about the use of the public residential charging points in their neighbourhood (RQ2) with a dichotomous answer option (yes/no). If the answer was yes, an open-ended question followed, asking the respondent to describe the content of those agreements (RQ3). Respondents who answered no were asked whether they wanted to make agreements (RQ2), also with a dichotomous answer option (yes/no). If the respondent answered with yes, an open-ended question followed, asking what agreements the respondent would like to make with their neighbours (RQ3). Answers could refer to multiple agreements. The exact phrasing of the questions about communication and agreement-making, in both English and Dutch, is presented in Table A.1 of Appendix A.

2.1.2. Social-psychological factors

To determine what social-psychological factors determine whether residents with EVs (want to) make agreements with their neighbours (RQ4), we included items for five factors that we consider influential based on the literature (see section 1.2): social norms, trust, perceived social interdependence, reputational concern, and perceived cohesion.

[2] The survey also included items on human–technology interactions, such as moving a vehicle from the charging point after charging, perceived importance of charging session characteristics such as contribution to grid stability, perceived contextual factors such as local parking pressure, and attitude towards measures to move a vehicle from a charging point such as an idle fee. Data from these questions are used for a different paper.

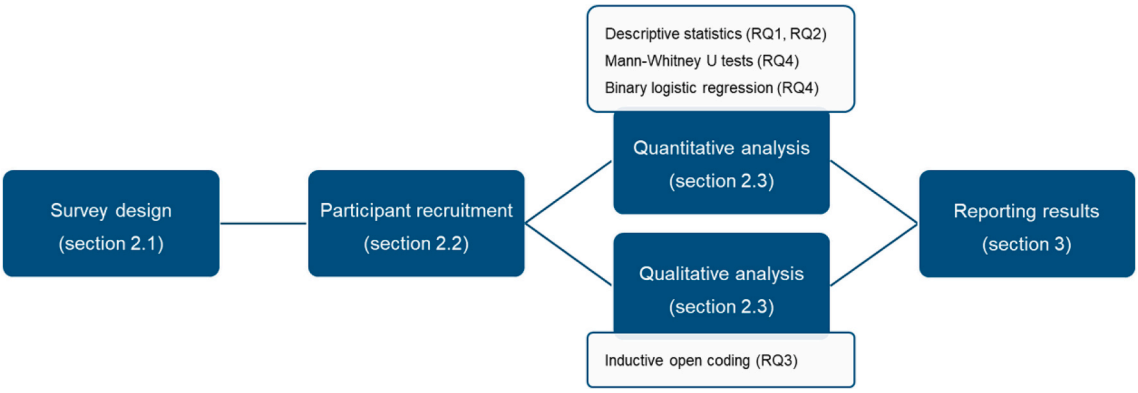


Fig. 1. The various steps in the research process. Descriptive statistics were used to determine the extent to which respondents communicate with their neighbours (RQ1) and the number of respondents who have made, or want to make, agreements with their neighbours (RQ2). Inductive open coding was used to code and categorise respondents' text answers into various types of agreements they have made with their neighbours (RQ3). Mann-Whitney U tests, and a binary logistic regression were used to analyse what social-psychological factors determine whether respondents make, or want to make, agreements with their neighbours.

For social norms, trust, and perceived social interdependence, items referred to neighbours with EVs using the public charging points in the neighbourhood as the reference group. Using the charging point was the reference behaviour. We constructed two items ($\alpha = 0.804$) reflecting social norms, one covering injunctive norms and one covering descriptive norms (Cialdini and Trost, 1998). We constructed three items ($\alpha = 0.813$) to measure trust. Two items are based on McAllister's (McAllister, 1995) cognition-based trust scale. We added one additional item to reflect trust in the cooperative intentions of others, based on Van Lange and De Dreu's (van Lange and de Dreu, 2003) definition of trust. For perceived social interdependence, we focused on the mutual dependence dimension (Columbus and Molho, 2022).[3] We used two items ($\alpha = 0.610$): one item based on Gerpott et al.'s (Gerpott et al., 2018) short-scale version and one item based on their long-scale version.

We measured an individual's reputational concern in relation to all other neighbours. We used two items ($\alpha = 0.708$) from De Cremer and Tyler's (de Cremer and Tyler, 2005) scale.[4] We measured perceived cohesion by using Bollen and Hoyle's (Bollen and Hoyle, 1990) perceived cohesion scale consisting of six items ($\alpha = 0.916$): three items reflecting sense of belonging and three items reflecting feelings of morale (Bollen and Hoyle, 1990).

To adapt the scales for our study, we made three changes. First, we changed the wording of the items to refer to our study's setting (e.g., neighbours, electric cars, public charging points) where relevant. Second, we simplified the phrasing of some items to increase understandability. Third, we translated the items from English to Dutch. All items were measured on an agreement scale (1 = completely disagree … 7 = completely agree). See Table B.1 in Appendix B for an overview of the items per factor, the sources on which they were based, and the Dutch and English language versions.

2.1.3. Demographic information

To characterise the sample, we included questions on the respondents' demographic characteristics. Data from five questions are included in this paper.[5] This included three questions to assess the aforementioned inclusion criteria: (1) the type of EV that respondents drive, (2) their use of six different charging facilities (private charging point, wall socket, public residential charging point, public charging point elsewhere, workplace charging point, and fast charger), and (3) their vehicle ownership basis. Additionally, we included questions about the respondents' (4) sex and (5) age. See Table C.1 in Appendix C for an overview of the questions and answer options in both Dutch and English.

2.2. Participant recruitment and inclusion criteria

We conducted an online survey between January 17, 2025 and February 7, 2025. Participants were recruited via several posts on LinkedIn, asking Dutch EV drivers who charge at public residential charging points to participate. The survey elicited 502 potential participants. We applied five inclusion criteria. The first criterion was a signed informed consent form (n = 1 removed), the second criterion a fully filled in survey (n = 86 removed). The third criterion was that respondents had to drive a full EV or a plug-in hybrid EV, as both types of vehicles require charging infrastructure to charge their electric motors (n = 12 removed). The fourth criterion was that respondents had to use public residential charging points for at least some of their charging needs (n = 74 removed).[6] The fifth criterion was that respondents had to own or lease their vehicle, as opposed to renting commercial shared EVs, as renters of shared EVs are not required to take any action after starting a charging session (n = 10 removed). As a last step, responses that repeatedly provided the same answer option (e.g., completely agree) to both positively and negatively formulated items were filtered from the dataset (n = 5). A total of 314 responses were analysed.

[3] We initially also measured the conflict-of-interest dimension (Gerpott et al., 2018) with two items. However, this dimension showed a low internal consistency ($\alpha = 0.352$), and combining these two dimensions into one perceived social interdependence scale resulted in lower internal consistency ($\alpha = 0.541$) than using only the items from the mutual dependence dimension. Hence, we decided to conduct our analyses using items from the mutual dependence dimension.

[4] We initially measured reputational concern with three items but removed one item because including the item resulted in lower internal consistency ($\alpha = 0.553$).

[5] We also collected information on the respondents' average percentage charged at public residential charging points, the time of use of public residential charging points, the number of public residential charging stations used, as well as the number of neighbours charging there, whether the respondent had access to a private parking spot, and the respondents' postal code. These data are used for a different paper.

[6] The use of public residential charging points can be supplemented with the use of other charging infrastructure, including the respondent's own private charging point.

2.3. Analyses

2.3.1. Quantitative data analysis

We used the software program *Statistical Package for the Social Sciences* (SPSS) version 30 for statistical analyses. To answer RQ1, regarding the communication between residents with EVs about the use of the public residential charging points, and RQ2, regarding the number of residents who (want to) make agreements with neighbours, we analysed descriptive statistics. When referring to respondents in the results section, percentages are rounded to the nearest integer.

To answer RQ4, regarding the social-psychological factors that determine whether residents with EVs (want to) make agreements, we originally aimed to conduct binomial regression analyses. However, a binomial logistic regression analysis was not feasible for the group of respondents who made agreements because the subgroup's size was too small for the number of independent variables included in the model. Therefore, in an alternative attempt to determine these factors, we used the same set of social-psychological factors to compare the subgroup who made agreements with the subgroup who did not make agreements. Before analysing differences between groups, we assessed skewness and kurtosis values, z-scores, and Shapiro-Wilk values. In light of these values and scores, in addition to the differences in subgroup sizes and the ordinal nature of the data on social-psychological factors, we conducted Mann-Whitney U tests as a non-parametric test for comparing differences between groups.

2.3.2. Qualitative data analysis

We used Excel to structure and analyse text data from open questions about the agreements that respondents had made or wanted to make (RQ3). Answers ranged from a single word to 115 words. We first reviewed the data to gain an overview of the similarities and differences between answers (Bingham, 2023). From this exploration, we identified two different types of agreements, based on the two types of interactions relevant for sharing public charging points (Tamis et al., 2024): (1) interpersonal interaction, meaning that the agreement is about forms of communication with neighbours, or (2) human–technology interaction, meaning that the agreement does not require interaction with neighbours after the agreement is made.

Within each category, we coded the answers inductively by comparing answers and identifying non-overlapping codes to summarise groups of answers (Bingham, 2023). We identified five codes for interpersonal interactions: (1) sharing contact information or setting up a communications channel, (2) asking or requesting to make the charging point available, (3) coordinating charging schedules, (4) notifying others that the charging point is available, and (5) other, for answers not fitting within the first four codes. We identified three codes for human–technology interactions: (1) moving a vehicle from the charging spot after charging, (2) parking at the charging point, and (3) other, for answers not fitting within the first two codes.

Unclear answers, (parts of) answers not referring to agreements about the use of public residential charging points, and (parts of) answers referring to charging point users other than neighbours (e.g., visitors) or infrastructure other than public residential infrastructure were not coded, because this is beyond the scope of our research aim.

3. Results

3.1. Sample characteristics

The entire sample consisted of 314 responses. The majority of respondents drove a full EV (92%). Vehicles were mainly used on a business lease basis (47%) or privately owned (35%). Respondents were on average 46 years old ($SD = 10.877$) and predominantly male (68%). An overview of the characteristics is shown in Table 1. Results of the 2024 Dutch National Charging Survey (Wolterman et al., 2024), a nationwide survey study amongst EV drivers in the Netherlands, are included for comparison.

Table 1
Sample characteristics.

Characteristic	Category	This survey n	This survey %	Dutch National Charging Survey (Wolterman et al., 2024) %
Type of EV	Full electric vehicle	288	92	100
	Plug-in hybrid electric vehicle	26	8	*N/A* [a]
Vehicle ownership	Private purchase	110	35	46
	Private lease	35	11	11
	Business purchase	21	7	10
	Business lease	146	47	32[b]
	Other [c]	2	1	1
Gender	Male	214	68	89
	Female	96	31	10
	Prefer not to disclose	4	1	1
Age groups	Below 20	0	0	0
	20–29	15	5	3
	30–39	87	28	13
	40–49	81	26	23
	50–59	95	30	31
	60–69	31	10	21
	70–79	5	2	8
	80 or older	0	0	1

[a] The Dutch National Charging Survey results only included results based on data from full electric vehicle drivers (Wolterman et al., 2024).
[b] This is based on combining the results for the categories self-employed and employee business lease. Our survey study did not make this distinction.
[c] For our survey study, this category was specified as a non-commercial shared vehicle (e.g., with friends). Source: Dutch National Charging Survey 2024 (Wolterman et al., 2024).

Public residential charging points were reportedly most used between three and six times monthly. A subgroup of 11% of respondents reports charging more than 15 times per month at public residential charging points. This highlights the importance of this charging infrastructure for certain EV drivers. More than half of the sample used fast chargers and public charging points outside their neighbourhood once or twice per month. More than half of the sample charged at workplace charging points, and more than 10% of respondents used a private charging point in addition to a public residential one. A detailed description of charging infrastructure use is presented in Table 2.

An overview of descriptive statistics of the social-psychological factors is presented in Table 3. On average, social norms and trust in neighbours about charging point usage were evaluated positively. Respondents had some concern for their reputation and perceived above-average social interdependence with other EV-driving neighbours. Perceived cohesion has the highest mean value, reflecting a good connection with their neighbourhood.

3.2. Communication between residents with EVs

Table 4 provides the descriptive statistics for the communication behaviours. Overall, few respondents engaged in communicative behaviour. Respondents rarely left a note or a parking disc. When starting a charging session in the past three months, six respondents (2%) left a note with their contact details in their vehicle. Ten (3%) and five respondents (2%), respectively, left a note or parking disc indicating when the vehicle would be either charged or moved. The overlap between behaviours per respondent is accounting for by 14 respondents (4%) engaging in one or more of these three behaviours, and did so with varying frequency.

Additionally, the large majority of respondents (n = 291, 93%) had not received a request from neighbours to move their vehicle from the

Table 2
Average number of times (%) per month that respondents charge at different charging facilities.

Number of times per month	Private charging point at house	Private wall socket at house	Public charging point in the neighbourhood	Public charging point elsewhere	Charging point at work	Fast charger
0 [a]	87	93	N/A [b]	21	46	30
1–2	2	4	16	51	16	53
3–4	2	1	22	15	11	12
5–6	3	0	19	7	9	2
7–8	1	1	13	2	6	1
9–10	1	0	12	2	4	1
11–12	2	0	5	0	2	0
13–14	0	0	1	0	2	0
> 15	3	1	11	2	4	1

[a] Respondents either do not choose to charge there or do not have access to this charging infrastructure.
[b] As charging at public residential charging points is an inclusion criterion, all respondents charge here.

Table 3
Means and standard deviations for the social-psychological factors, measured on a 7-point Likert scale.

Social-psychological factor	n	*M*	*SD*	*Md*
Social norms	314	4.95	1.434	5.5
Trust	314	4.68	1.308	5.0
Reputational concern	314	4.75	1.189	5.0
Perceived social interdependence	314	5.23	1.139	5.5
Perceived cohesion	314	5.37	1.087	5.67

Table 4
Descriptive statistics for the communication behaviours regarding public charging point use.

	Behaviour	n	%
	When starting a charging session at a public charging point in my neighbourhood…		
1	… I placed a note under the windshield of my car with my contact information.	314	
	Yes	6	2
	No	308	98
2	… I placed a note or parking disc under the windshield of my car indicating when my car would finish charging.	314	
	Yes	10	3
	No	304	97
3	… I placed a note or parking disc under the windshield of my car indicating when I would move my car to another parking spot.	314	
	Yes	5	2
	No	309	98
4	How often in the past three months, when a neighbour asked to use the public charging point where your car was parked, have you moved your car to another parking space?		
	Received requests and moved the vehicle	17	5
	Received requests, but did not move the vehicle	6	2
	Did not receive requests	291	93
5	In the past three months, have you had contact with one or more neighbours with electric cars via your mobile phone about the use of public charging points in your neighbourhood? [a]		
	Yes, via a messaging service (such as WhatsApp or Signal).	16	5
	Yes, via apps specifically designed for this (such as SocialCharging or NeedToCharge).	2	1
	Yes, in another way.	3	1
	No.	293	93

Note: The first four items were answered on a 7-point scale.
[a] Respondents could select multiple answers, but no respondent did so.

public residential charging point in the past three months. This could indicate that requesting the use of the charging point is not common. Of the 23 respondents (7%) who received requests, six reportedly did not move their vehicles, and 17 respondents moved their vehicles with varying frequency. There was no overlap between respondents who left a note or a parking disc and those who received requests. Twenty-one respondents (7%) reported communications between the respondent and their neighbours about the use of public charging points via mobile phones. Sixteen of these respondents (5%) used messaging services on their smartphone (e.g., WhatsApp or Signal) to contact their neighbours, two respondents (1%) used specific charging apps, and three respondents (1%) used alternative means. In total, excluding the six respondents who received requests but did not move their vehicles, a small part of the sample (n = 44, 14%) engaged in one or more communication behaviours.

3.3. Making agreements

Eleven respondents (4%) reported having made agreements with their neighbours, and 10 of these 11 respondents provided clear answers regarding the agreements made. The following analysis of the agreements should therefore be considered anecdotal rather than exemplary. Five respondents mentioned having made agreements about moving the vehicle, whereas four respondents reported having made agreements about *communicating* about moving a vehicle from the charging point, such as asking or requesting the use of a charging point by ringing their neighbour's doorbell. Two respondents made agreements about either notifying neighbours about malfunctioning public charging points or using a malfunctioning charging station that did not allow simultaneous use of both charging points. Additionally, one respondent reported agreements allowing non-EVs to park at the charging spots when parking pressure in the neighbourhood was high, and one respondent reportedly made agreements about coordinating the necessity to charge.

3.4. Wanting to make agreements

Regarding the 302 respondents who did not make agreements, 132 respondents (42%) wanted to make agreements.[7] Of the 132 respondents, 116 provided clear answers regarding the agreements that they wanted to make.

Regarding interpersonal interactions, 34 respondents (29%) referred to making agreements about coordinating charging schedules. Examples include agreements about who gets to charge when, how long people should charge, and that people who can charge during the day should do so, so that people who need to charge in the evening find more available charging points. Twenty-three respondents (20%) referred to making agreements about setting up a communications channel, such as a WhatsApp group, or exchanging contact information, such as telephone numbers. This was considered useful in that neighbours could contact one another when necessary. Twenty-three respondents (20%) referred to making agreements about asking or requesting someone to move their vehicle from the charging point. Not all answers also referred to the

[7] One respondent initially answered that they had made agreements with neighbours, but when asked in an open question about the type of agreements made, clarified that they had not made agreements. Their answer was corrected in the data; however, the survey design did not allow us to gather data on their willingness to make agreements.

requester wanting to charge; the phrasing of some answers indicated that this behaviour is also meant to point out that neighbours are overstaying at the charging point and therefore should move their vehicle. Twelve respondents (10%) referred to making agreements about notifying others when the charging point becomes available, such as sending a text message to a neighbour after having moved the vehicle. One respondent (1%) referred to making agreements about sharing information regarding malfunctioning or new charging points.

Regarding human–technology interactions, 46 respondents (40%) referred to moving a vehicle away from the charging point after charging as an agreement to be made with neighbours. This was the most referred to agreement. Additionally, nine respondents (8%) referred to agreements about parking, primarily about parking neatly so other people could park and charge too, parking but not charging the vehicle, creating parking rules, and using the unassigned parking spot next to the charging point.

3.5. Factors determining the making of agreements

3.5.1. Residents who made agreements with neighbours

All results from the Mann-Whitney *U* test, comparing residents with EVs who made agreements ($n = 11$) with those who had not made agreements ($n = 303$) on all social-psychological factors, can be found in Table D.1 in Appendix D. Because of the large difference in group sizes, results are explorative and should be carefully interpreted. The results show that respondents who made agreements with neighbours perceived statistically significantly higher social interdependence ($M = 5.77$, $SD = 1.057$) than respondents who did not make agreements ($M = 5.21$, $SD = 1.138$, $p = 0.050$). There were no statistically significant differences between the two groups for the other social-psychological factors.

3.5.2. Residents who want to make agreements with neighbours

The results of the binary logistic regression are presented in Table 5.[8] The binary logistic regression model was statistically significant $\chi^2(5) = 33.348$, $p < 0.001$. The model explained 14% (Nagelkerke R^2) of the variance, correctly classifying 63.6% of cases (sensitivity was 46.2% and specificity was 77.1%). Two social-psychological factors were statistically significant: trust ($\beta = -0.275$, $p = 0.016$) and perceived social interdependence ($\beta = 0.479$, $p < 0.001$). A decrease in trust was associated with an increased likelihood of wanting to make agreements, whereas an increase in perceived social interdependence was associated with an increased likelihood of wanting to make agreements.

4. Discussion

Interpersonal interactions between residents with EVs – in our study operationalised as various ways to communicate and to make agreements with one another – have received little attention in research, despite their importance for sharing public residential charging infrastructure. Therefore, we aimed to assess how and how often residents with EVs communicate with one another, whether they (want to) make agreements with their neighbours, the types of agreements that they (want to) make, and the social-psychological factors that determine whether they (want to) make agreements. We distributed a survey amongst Netherlands-based EV drivers charging at public charging points in their neighbourhood. We found that few residents communicate about the use of public residential charging points with their neighbours, and even fewer have made agreements. However, we also found that a considerable number of EV drivers want to make agreements and, interestingly, communication with neighbours featured strongly in their desired type of agreements. In addition, perceived social interdependence seems to be an important factor that determines whether residents want to make agreements.

4.1. Communication and agreements between residents with EVs

We found that only a minority of residents with EVs communicate with their neighbours about the use of the public charging points (RQ1): less than 15% of the EV drivers in this study reported performing at least one of the five communicative behaviours surveyed. Although this number is low, it is comparable with the percentage of EV drivers who, in other research, indicated that they valued communication with other EV drivers about the use of public charging points (Tamis et al., 2025). It is interesting to note that both indirect forms of communication, such as leaving a note or a parking disc, and direct forms of communication, such as sending a text message or requesting the use of a charging point, are rare. Neighbours communicating about the use of their local public charging points can thus not be considered common practice. With a larger and representative sample of respondents engaging in communicative behaviours, research could identify individual characteristics or social-psychological factors that determine whether residents communicate with their neighbours.

It is an even less common practice to make agreements with neighbours about the use of public residential charging points (RQ2): only a small percentage of the EV drivers in this study have done so. These results contrast with a nationwide survey study (Wolterman et al., 2024), which found that about one-third of Dutch EV drivers made agreements about moving a vehicle from workplace charging points. The difference could be because colleagues already know and interact with one another in the workplace, whereas this might not be the case for neighbours. Colleagues are also required to cooperate on the work floor and are therefore likely to be interdependent with one another. This dynamic of cooperation and interdependence between colleagues might perhaps make it easier to make agreements about sharing charging points. Additionally, agreements could be facilitated or mandated by the employer in an effort to manage charging point demand.

The few residents who did make agreements stand in contrast to the number of residents who wanted to make agreements (RQ2): 42% wanted to do so. These results show a discrepancy between what people want to do, their intention, and what people actually do, their behaviour. This is referred to as the intention–behaviour gap, a well-known concept in psychology and relevant for different types of behaviours (Ajzen, 2020; Conner and Norman, 2022). People with positive intentions to act but not showing the actual behaviour have been labelled as inclined abstainers (Sheeran, 2002). The high share of inclined abstainers in our study highlights both the perceived relevance of informal agreements with neighbouring residents with EVs and the additional research and effort required to bridge the intention–behaviour gap.

4.2. Bridging the intention–behaviour gap

The large share of inclined abstainers raises the question of what is restraining those who want to make agreements from actually doing so. Our research does not allow us to explain this intention–behaviour gap, because we did not collect data on psychological factors that might indicate why people refrain from making agreements. However, parallels with communication on climate change topics lead us to consider three explanations, which we highlight briefly here.

First, people might believe that others do not share their intention to make agreements and that their opinions reflect those of a minority. Given that not many residents communicate with their EV-driving

[8] All necessary assumptions were met before we conducted the analysis. All independent variables were found to be linearly related to the logit of the dependent variable. A linear regression analysis was run to test for multicollinearity; all variance inflation factor (VIF) values were between 1 and 1.5, with 1.117 as the smallest value and 1.482 as the largest value. One standardised residual with a value of 2.603 standard deviations was identified and kept in the analysis.

Table 5
Binary logistic regression results determining the effect of social-psychological factors on wanting to make agreements.

	B	SE	Wald	*df*	*p*	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Social norms	−0.176	0.106	2.779	1	0.095	0.839	0.682	1.031
Trust	−0.275	0.114	5.811	1	0.016	0.760	0.608	0.950
Reputational concern	0.165	0.116	2.029	1	0.154	1.179	0.940	1.479
Perceived social interdependence	0.479	0.126	14.412	1	<0.001	1.615	1.261	2.069
Perceived cohesion	−0.053	0.123	0.187	1	0.665	0.948	0.744	1.207
Constant	−1.121	0.911	1.515	1	0.218	0.326		

neighbours about the use of public charging points, making agreements might not have been a topic of conversation between them. A reluctance to start the conversation might result from perceived negative evaluations by those who dissent or disagree (Geiger and Swim, 2016), although our findings do not show reputational concern to be a determining factor for residents' willingness to make agreements with their neighbours. As cooperation in small groups develops over time through social interaction (Titlestad et al., 2019), one way to change this perception is by making preferences known through social interactions (Bolderdijk and Jans, 2021).

Second, residents who want to make agreements might perceive the need to set an example of the behaviour about which they want to make an agreement by acting accordingly at all times. Although research has shown that advocates do not have to align their behaviour perfectly with their advocacy stance at all times in order for their advocacy to be effective (Sparkman and Attari, 2020), perceived shortcomings in their behaviour might hinder them from starting the conversation.

Third, people might perceive that they lack the self-efficacy to organise with neighbours, for instance by not knowing how to address this topic in conversations. Alternatively, they might perceive low response efficacy (Kollock, 1998), meaning that they believe that even acting collectively according to the agreements made may not contribute substantially to improved charging point availability.

These hypotheses warrant additional research if this intention–behaviour gap is to be bridged. Therefore, we recommend further research to explore: first, whether residents think that their neighbours want to make agreements, and thus whether they perceive a local injunctive norm in favour of the behaviour; second, whether people feel that they need to change their current behaviour, and the extent of their intention to do so, to conform to agreements, potentially revealing whether the required behaviour change acts as a barrier to making agreements. Third, measuring self-efficacy and response-efficacy might reveal whether these factors are indeed experienced as barriers to making agreements with neighbours. Fourth, exploring what people would need to make agreements with neighbours, in terms of information or facilitative measures, could counter any potential barrier posed by their own required behavioural change or any form of efficacy.

4.3. The agreements residents (want to) make

The few residents who have made agreements with their neighbours provide some insight into the agreements that are important among neighbours (RQ3); most of their agreements concern moving a vehicle from the charging point after charging, or communicating about doing so. The difference in group sizes makes it difficult to compare the agreements made with the agreements that residents want to make. Interestingly, the majority of the agreements that residents want to make (RQ3) concern interpersonal interactions. Coordination of charging needs, sharing contact information or setting up a communication channel, asking or requesting to make the charging point available, and notifying others that the charging point is available were important topics about which to make agreements. Receiving a notification that a charging point has become available is a feature provided by some charging apps (e.g., (Vattenfall InCharge, n.d.)); this means that communication between neighbours might not be necessary for knowing when a charging point is available again.

Thus, few residents currently communicate with their neighbours about the use of charging points, but more residents want to make agreements about doing so. Additionally, for this group too, moving a vehicle away from the charging point after charging is an important topic about which to make agreements. Asking or requesting others to make the charging point available, and notifying others that the charging point is available, are actions that also concern moving a vehicle from the charging point. This aligns with the finding that EV drivers consider that moving a vehicle from the public charging point is the most important behaviour for sharing these charging points (Tamis et al., 2025).

These types of agreements, particularly the forms of communication, highlight a sense of collective action, whereby people cooperate to achieve collective benefits (Ostrom, 1990). This aligns with the importance of perceived social interdependence for making these agreements. A specific advantage is that rules between users can be tailored to local circumstances (Ostrom, 2000). These could pertain to the physical environment, such as parking pressure or the number of charging points, but equally so to the social context, such as communication with neighbours. For instance, in neighbourhoods where residents frequently contact one another, agreements might stipulate that ringing a neighbour's doorbell to request them to move their vehicle from the charging point is an appropriate way to contact them, whereas in other neighbourhoods it might not. Similarly, in neighbourhoods with high parking pressure and few EVs, agreements might allow non-EVs to be parked at unoccupied charging spots, whereas in neighbourhoods with low parking pressure, they may not. Further research, preferably qualitative research such as interviews, could explore and elaborate on how residents discuss, negotiate, and formalise the coordination of charging needs.

4.4. Factors determining the making of agreements

Perceived social interdependence appears to be an important factor for both making agreements and wanting to make agreements (RQ4) with neighbours about the use of charging points. Residents who had made agreements perceived higher social interdependence than those who did not. Furthermore, the more residents who want to make agreements consider themselves and their neighbours to be mutually dependent for using these charging points, the more likely they are to want to make agreements. Additionally, the less people trust their neighbours' usage of the public charging points, the more likely they are to want to make agreements. This finding warrants further research and might indicate that residents want to make agreements about certain cooperative behaviours because they do not think their neighbours will behave accordingly otherwise. This trust might increase again if residents know that their neighbours adhere to the agreements made.

Making agreements between neighbours might provide everyone with insights into how they are mutually dependent, for instance by discussing who prefers to charge when and when these preferences

overlap. Creating charging schedules, so that neighbours charge consecutively at the same charging point, might then somewhat reduce their level of dependence on one another's behaviour. These findings contribute to the research on the influence of social interdependence on cooperation in social dilemmas, in that we highlight that perceived social interdependence is an important factor for cooperation at public residential charging points.

4.5. Methodological limitations and recommendations for further research

The results of this study should be considered in light of the methodological choices made in the research design. Our sample was limited to the Dutch context and self-selected via social media. Compared with the Dutch National Charging survey sample in 2024 (Wolterman et al., 2024), our sample contains a higher percentage of women, has a lower average age, and more EVs are driven on a business lease basis and fewer are privately purchased. Hence, our sample might not be representative of the overall Dutch EV population. Recruitment via LinkedIn might have resulted in more respondents with higher educational backgrounds, reflected by the large share of vehicles driven on a business lease basis. Future research should focus on other countries with different levels of public residential charging infrastructure and include random and representative samples to obtain more robust findings. We make three recommendations on how future research could expand our research design.

First, our study design included *social*-psychological factors and did not include underlying *individual*-level psychological factors. For instance, an individual's social value orientation has been shown to influence (expectations of others') cooperative behaviour (Bogaert et al., 2008), whereby the expectations of another's cooperative behaviour could be seen as an operationalisation of trust (Pletzer et al., 2018). Further research on communication and agreements between neighbours could focus on individual-level psychological factors, and particularly how these factors relate to the social-psychological factors accounted for in our study.

Second, we focused on residents with EVs, as they are the primary users of public residential charging infrastructure. However, public residential charging point availability is likely to be influenced by other groups, such as visitors and commercially shared EVs using the same public charging points. Their charging sessions differ from those of residents (Wolbertus et al., 2018), and some shared EVs might have dedicated parking and charging spots, but further survey research could examine the influence of non-resident charging point usage on communications among both residents and residents and non-residents regarding public charging point use, residents' willingness to make agreements, and their views on the efficacy of these agreements, considering non-neighbour influences.

Third, our research design did not incorporate residents' preferences for charging session attributes. Charging strategies are still in development, whereby attributes such as charging speed, time of charging, and energy cost are based on factors such as local energy demand. For instance, slower charging speeds and reduced charging tariffs, introduced as part of smart charging strategies in an effort to counter grid congestion (Kubli, 2022), could influence how EV drivers use the charging point and consequently (want to) share the available charging time with neighbours. Changes in these charging-session attributes might make communication between neighbours even more important, such as informing one another that vehicles are charging more slowly and neighbours therefore have to wait longer before they can charge. Additionally, charging according to grid conditions might require different agreements, for instance by taking slower charging during grid congestion into account, or by sharing access to charging points when charging is cheap as a result of dynamic pricing. Both quantitative and qualitative research could focus on the influence of grid congestion and smart and bidirectional charging on communication between neighbours and the type of agreements that they want to make, given that EV drivers are expected to share public charging points and also contribute to alleviating grid congestion.

4.6. Policy recommendations

About half of the residents with EVs in our study either have made or want to make agreements with their neighbours to share public residential charging points. Before offering our policy recommendations, we emphasise that stakeholders in the public charging infrastructure, primarily grid operators, CPOs, and municipalities should recognise the influence that communication and informal agreements can have on an individual's charging behaviour. Informal agreements between residents, particularly when these agreements concern coordinating charging schedules, could be an effective way to optimise public charging point use and increase residents' satisfaction with the charging infrastructure provided. Thus, we argue that informing, encouraging, and facilitating residents to make agreements provides an effective and low-cost policy measure compared with more traditional policies aimed at sanctioning behaviour, such as parking restrictions and fees. We recommend that municipalities and CPOs harness the efficacy of informal agreements by bridging the intention–behaviour gap in two steps.

First, we recommend informing EV drivers about how to make agreements with neighbours and encouraging them to do so by making this information practical and relevant. This information could (i) explain how residents' use of the charging points influences one another's behaviour, thus explaining the social interdependence between charging point users; (ii) emphasise that there are likely more neighbours willing to make agreements, to indicate the presence of an injunctive norm (van Valkengoed et al., 2022) in favour of making agreements and counter the previously mentioned notion of pluralistic ignorance; (iii) explain how neighbours might organise themselves to reach agreements in order to increase their self-efficacy to do so (van Valkengoed et al., 2022); (iv) provide examples of agreements that could be made and of residents who have successfully made such agreements with their neighbours; this technique to encourage behaviour change is called modelling (Michie et al., 2014); and (v), to increase response efficacy, illustrate the potential benefits of different agreements.[9] Municipalities could provide this information on their websites and share it with residents before new public charging points are installed. In order to direct residents towards these agreements, CPOs could display this information in their charging apps and, by analysing charging data, send notifications to residents of frequently visited charging points or charging points where residents tend to prefer charging at the same time.

Second, building on information provision, we recommend facilitating residents to initiate conversations with their neighbours. CPOs could provide in-app features that allow users to communicate with one another and provide a list of the most commonly made agreements. Certain apps do currently allow EV drivers to communicate with one another based on where they charge (e.g., (NeedToCharge, n.d.)), but our results show that residents do not use these apps to communicate with their neighbours, and communication features do not appear to be widely incorporated by CPOs active in the Dutch market. Additionally,

[9] From a behavioural analysis perspective using the COM-B model (Michie et al., 2014), these recommendations target various behavioural factors relevant to engaging in a behaviour. The recommendations would influence EV drivers' psychological capability by providing information about social interdependence and examples of agreements that could be made; reflective motivation by increasing self-efficacy to make agreements and response efficacy by showing the potential benefits; and social opportunity by highlighting the injunctive norm of neighbours who might also want to make agreements (Michie et al., 2014).

municipalities can encourage residents who already participate in local informal networks, such as neighbourhood app groups, to use these channels to discuss agreements or rules for communication between EV drivers.

5. Conclusion

Efficient sharing of public residential charging points depends on residents' cooperative behaviour. Communication and agreements between residents with EVs about the use of these charging points remain under researched, despite their potential to increase cooperation and therefore charging points' efficiency. We show that communication and agreements between residents are currently not common practice but that a considerable number want to make agreements, including agreements about communication. Perceived social interdependence appears to be an important factor for making agreements. We therefore encourage CPOs and policymakers to consider social approaches to managing public residential charging-point availability by informing, encouraging, and facilitating residents to make agreements with one another.

CRediT authorship contribution statement

Milan Tamis: Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Gerdien de Vries:** Writing – review & editing, Supervision, Conceptualization. **Reint Jan Renes:** Writing – review & editing, Supervision, Funding acquisition.

Funding

This work was supported by the Dutch Research Council (NWO) [grant number 17628].

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We thank Catherine O'Dea for proofreading this manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.trip.2026.101928.

Data availability

The authors do not have permission to share data.

References

Ajzen, I., 2020. The theory of planned behavior: frequently asked questions. Hum. Behav. Emerg. Technol. 2, 314–324. https://doi.org/10.1002/hbe2.195.
Asensio, O.I., Apablaza, C.Z., Lawson, M.C., Walsh, S.E., 2022. A field experiment on workplace norms and electric vehicle charging etiquette. J. Ind. Ecol. 26, 183–196. https://doi.org/10.1111/jiec.13116.
Balliet, D., 2010. Communication and cooperation in social dilemmas: a meta-analytic review. J. Confl. Resolut. 54, 39–57. https://doi.org/10.1177/0022002709352443.
Balliet, D., Tybur, J.M., Van Lange, P.A.M., 2017. Functional interdependence theory: an evolutionary account of social situations. Pers. Soc. Psychol. Rev. 21, 361–388. https://doi.org/10.1177/1088868316657965.
Balliet, D., Van Lange, P.A.M., 2013. Trust, conflict, and cooperation: a meta-analysis. Psychol. Bull. 139, 1090–1112. https://doi.org/10.1037/a0030939.
Bingham, A.J., 2023. From data management to actionable findings: a five-phase process of qualitative data analysis. Int. J. Qual. Methods 22, 1–11. https://doi.org/10.1177/16094069231183620.
Bogaert, S., Boone, C., Declerck, C., 2008. Social value orientation and cooperation in social dilemmas: a review and conceptual model. Br. J. Soc. Psychol. 47, 453–480. https://doi.org/10.1348/014466607X244970.
Bolderdijk, J.W., Jans, L., 2021. Minority influence in climate change mitigation. Curr. Opin. Psychol. 42, 25–30. https://doi.org/10.1016/j.copsyc.2021.02.005.
Bollen, K.A., Hoyle, R.H., 1990. Perceived cohesion: a conceptual and empirical examination. Soc. Forces 69, 479–504. https://doi.org/10.1093/sf/69.2.479.
Bornioli, A., Vermeulen, S., Mingardo, G., 2024. Can app notifications reduce charging hogging? an experiment with electric vehicle drivers. Case Stud. Transp. Policy 15, 101143. https://doi.org/10.1016/j.cstp.2023.101143.
Buckner, J.C., 1988. The development of an instrument to measure neighborhood cohesion. Am. J. Community Psychol. 16, 771–791. https://doi.org/10.1007/BF00930892.
Budnitz, H., 2024. From interest to evangelist: Accelerating the adoption of electric vehicles via distinct parking and charging practices in the United Kingdom. Energy Res. Soc. Sci. 116, 103675. https://doi.org/10.1016/j.erss.2024.103675.
Caperello, N., Kurani, K.S., TyreeHageman, J., 2013. Do you mind if I plug-in my car? how etiquette shapes PEV drivers' vehicle charging behavior. Transp. Res. Part A Policy Pract. 54, 155–163. https://doi.org/10.1016/j.tra.2013.07.016.
Cialdini, R.B., 2012. The focus theory of normative conduct, in: Van Lange, P.A.M., Kruglanski, A.W., Higgins, T. (Eds.), Handbook of Theories of Social Psychology. SAGE, pp. 295–312.
Cialdini, R.B., Trost, M.R., 1998. Social influence: Social norms, conformity, and compliance. In: Gilbert, D.T., Fiske, S.T., Lindzey, G. (Eds.), The Handbook of Social Psychology. McGraw-Hill, pp. 151–192.
Columbus, S., Molho, C., 2022. Subjective interdependence and prosocial behaviour. Curr. Opin. Psychol. 43, 226–231. https://doi.org/10.1016/j.copsyc.2021.07.022.
Conner, M., Norman, P., 2022. Understanding the intention-behavior gap: the role of intention strength. Front. Psychol. 13. https://doi.org/10.3389/fpsyg.2022.923464.
Dawes, R.M., Messick, D.M., 2000. Social dilemmas. Int. J. Psychol. 35, 111–116. https://doi.org/10.1146/annurev.ps.31.020180.001125.
de Cremer, D., Tyler, T.R., 2005. Am I respected or not?: Inclusion and reputation as issues in group membership. Soc. Justice Res 18, 121–153. https://doi.org/10.1007/s11211-005-7366-3.
Deutsch, M., 1949. A theory of co-operation and competition. Hum. Relat. 2, 129–152. https://doi.org/10.1177/001872674900200204.
D'Oca, S., Pisello, A.L., De Simone, M., Barthelmes, V.M., Hong, T., Corgnati, S.P., 2018. Human-building interaction at work: Findings from an interdisciplinary cross-country survey in Italy. Build. Environ. 132, 147–159. https://doi.org/10.1016/j.buildenv.2018.01.039.
ElBanhawy, E.Y., Price, B.A., 2015. Understanding the social practice of EV workplace charging. In: UbiComp and ISWC 2015 - Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing and the Proceedings of the 2015 ACM International Symposium on Wearable Computers 1133–1142. https://doi.org/10.1145/2800835.2800977.
European Automobile Manufacturers' Association, 2024. Charging ahead: accelerating the roll-out of EU electric vehicle charging infrastructure.
Fehr, E., Fischbacher, U., 2004. Social norms and human cooperation. Trends Cogn. Sci. 8, 185–190. https://doi.org/10.1016/j.tics.2004.02.007.
Geiger, N., Swim, J.K., 2016. Climate of silence: pluralistic ignorance as a barrier to climate change discussion. J. Environ. Psychol. 47, 79–90. https://doi.org/10.1016/j.jenvp.2016.05.002.
Gerpott, F.H., Balliet, D., Columbus, S., Molho, C., de Vries, R.E., 2018. How do people think about interdependence? a multidimensional model of subjective outcome interdependence. J. Pers. Soc. Psychol. 115, 716–742. https://doi.org/10.1037/pspp0000166.supp.
Globisch, J., Plötz, P., Dütschke, E., Wietschel, M., 2019. Consumer preferences for public charging infrastructure for electric vehicles. Transp. Policy (oxf) 81, 54–63. https://doi.org/10.1016/j.tranpol.2019.05.017.
Grimalda, G., Pondorfer, A., Tracer, D.P., 2016. Social image concerns promote cooperation more than altruistic punishment. Nat. Commun. 7, 12288. https://doi.org/10.1038/ncomms12288.
Helmus, J.R., Vogel, I.S.P., Van Den Hoed, R., 2020. Exploring social charging behavior between EV users in sharing charging points. In: In: 33rd Electric Vehicle Symposium (EVS33). https://doi.org/10.5281/zenodo.4021363.
Helmus, J.R., Wolbertus, R., 2023. Cooperative behaviour at public electric vehicle charging stations. Travel Behav. Soc. 32, 100572. https://doi.org/10.1016/j.tbs.2023.100572.
International Energy Agency, 2025. Global EV outlook 2025. Expanding sales in diverse markets.
Jin, S., Spadaro, G., Balliet, D., 2024. Institutions and cooperation: a meta-analysis of structural features in social dilemmas. J. Pers. Soc. Psychol. 129, 286–312. https://doi.org/10.1037/pspi0000474.
Kollock, P., 1998. Social dilemmas: the anatomy of cooperation. Annu. Rev. Sociol. 24, 183–214.
Kubli, M., 2022. EV drivers' willingness to accept smart charging: measuring preferences of potential adopters. Transp. Res. D Transp. Environ. 109, 103396. https://doi.org/10.1016/j.trd.2022.103396.
Ledna, C., Muratori, M., Brooker, A., Wood, E., Greene, D., 2022. How to support EV adoption: Tradeoffs between charging infrastructure investments and vehicle subsidies in California. Energy Policy 165, 112931. https://doi.org/10.1016/j.enpol.2022.112931.

Martin, J.M., Gonzalez, C., Juvina, I., Lebiere, C., 2014. A description–experience gap in social interactions: Information about interdependence and its effects on cooperation. J. Behav. Decis. Mak. 27, 349–362. https://doi.org/10.1002/bdm.1810.

McAllister, D.J., 1995. Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. Acad. Manag. J. 38, 24–59.

Michie, S., Atkins, L., West, R., 2014. The behaviour change wheel. A guide to designing interventions. Silverback Publishing.

Nationale Agenda Laadinfrastructuur, 2024. Voortgangsrapportage April 2024.

NeedToCharge, n.d. NeedToCharge [WWW Document]. URL https://www.needtocharge.com/ (accessed 1.21.25).

Ostrom, E., 2000. Collective action and the evolution of social norms. J. Econ. Perspect. 14, 137–158. https://doi.org/10.1080/19390459.2014.935173.

Ostrom, E., 1990. Governing the Commons: The Evolution of Institutions for Collective Action, Political Economy of Institutions and Decisions.

Pletzer, J.L., Balliet, D., Joireman, J., Kuhlman, D.M., Voelpel, S.C., Van Lange, P.A.M., 2018. Social value orientation, expectations, and cooperation in social dilemmas: a meta-analysis. Eur. J. Pers. 32, 62–83. https://doi.org/10.1002/per.2139.

Preston, C.C., Colman, A.M., 2000. Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. Acta Psychol. 104, 1–5. https://doi.org/10.1016/S0001-6918(99)00050-5.

RAI Vereniging, 2023. Algemeen voorzitter RAI Vereniging Frits van Bruggen slaat "'laadpaalalarm'" [WWW Document]. URL https://www.raivereniging.nl/actueel/nieuws/algemeen-voorzitter-rai-vereniging-frits-van-bruggen-slaat-laadpaalalarm/ (accessed 1.12.23).

Romano, A., Balliet, D., Yamagishi, T., Liu, J.H., 2017. Parochial trust and cooperation across 17 societies. PNAS 114, 12702–12707. https://doi.org/10.1073/pnas.1712921114.

Sheeran, P., 2002. Intention—behavior relations: a conceptual and empirical review. Eur. Rev. Soc. Psychol. 12, 1–36. https://doi.org/10.1080/14792772143000003.

Simms, L.J., Zelazny, K., Williams, T.F., Bernstein, L., 2019. Does the number of response options matter? psychometric perspectives using personality questionnaire data. Psychol. Assess. 31, 557–566. https://doi.org/10.1037/pas0000648.

Sparkman, G., Attari, S.Z., 2020. Credibility, communication, and climate change: how lifestyle inconsistency and do-gooder derogation impact decarbonization advocacy. Energy Res. Soc. Sci. 59, 101290. https://doi.org/10.1016/j.erss.2019.101290.

Számadó, S., Balliet, D., Giardini, F., Power, E.A., Takács, K., 2021. The language of cooperation: reputation and honest signalling. Philos. Trans. R. Soc., B 376, 1–8. https://doi.org/10.1098/rstb.2020.0286.

Tamis, M., de Vries, G., Renes, R.J., 2025. Moving your electric car for others: Identifying injunctive norms for sharing public charging points. Manuscript under review.

Tamis, M., de Vries, G., Renes, R.J., Alkemade, F., 2024. Plugging in with neighbours: defining the social dimension of electric vehicle charging in the Netherlands. Energy Res. Soc. Sci. 118, 103791. https://doi.org/10.1016/j.erss.2024.103791.

Tazelaar, M.J.A., Van Lange, P.A.M., Ouwerkerk, J.W., 2004. How to cope with "noise" in social dilemmas: the benefits of communication. J. Pers. Soc. Psychol. 87, 845–859. https://doi.org/10.1037/0022-3514.87.6.845.

Titlestad, K., Snijders, T.A.B., Durrheim, K., Quayle, M., Postmes, T., 2019. The dynamic emergence of cooperative norms in a social dilemma. J. Exp. Soc. Psychol. 84, 103799. https://doi.org/10.1016/j.jesp.2019.03.010.

TyreeHageman, J., Kurani, K.S., Caperello, N., 2014. What does community and social media use look like among early PEV drivers? Exploring how drivers build an online resource through community relations and social media tools. Transp. Res. D Transp. Environ. 33, 125–134. https://doi.org/10.1016/j.trd.2014.09.005.

van der Kam, M., van Sark, W., Alkemade, F., 2020. Multiple roads ahead: how charging behavior can guide charging infrastructure roll-out policy. Transp. Res. D Transp. Environ. 85, 1–19. https://doi.org/10.1016/j.trd.2020.102452.

van Lange, P.A.M., de Dreu, C.K.W., 2003. Social interaction: Cooperation and competition, in: Hewstone, M., Stroebe, W. (Eds.), Introduction to Social Psychology. Blackwell Publishing, pp. 341–369.

van Valkengoed, A.M., Abrahamse, W., Steg, L., 2022. To select effective interventions for pro-environmental behaviour change, we need to consider determinants of behaviour. Nat. Hum. Behav. 6, 1482–1492. https://doi.org/10.1038/s41562-022-01473-w.

Vattenfall InCharge, n.d. The Vattenfall InCharge app [WWW Document]. URL https://incharge.vattenfall.nl/en/charge-on-the-go/app (accessed 7.1.25).

Wolbertus, R., Kroesen, M., van den Hoed, R., Chorus, C., 2018. Fully charged: an empirical study into the factors that influence connection times at EV-charging stations. Energy Policy 123, 1–7. https://doi.org/10.1016/j.enpol.2018.08.030.

Wolbertus, R., Van Den Hoed, R., 2017. Charging station hogging: a data-driven analysis. In: EVS 2017–30th International Electric Vehicle Symposium and Exhibition.

Wolterman, B., Duurkoop, T., Zweistra, M., Hiep, E., van Biezen, M., 2024. Nationaal Laadonderzoek 2024: Laden van elektrische auto's in Nederland - Ervaringen en meningen van EV-rijders.

Wolterman, B., Hiep, E., van Biezen, M., Zweistra, M., 2025. Nationaal Laadonderzoek 2025: Laden van elektrische auto's in Nederland - Ervaringen en meningen van EV-rijders.

Yang, G., Hitchings, R., Lotti, L., Shipworth, M., 2022. Understanding the social norms of cooling in Chinese offices: predominance, professionalism, and peer respect. Energy Res. Soc. Sci. 94, 102861. https://doi.org/10.1016/j.erss.2022.102861.